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ABSTRACT

Differences across majors in students' attitudes about future work and satisfaction with their academic program, and the effect of sex on any differences, were studied. A sample of 5,642 undergraduate seniors were selected from the students surveyed in the National Longitudinal Study (NLS) of the High School Class of 1972. The five college major areas studied were business, education, humanities/fine arts, physical and biological sciences/math, and the social sciences. The attitudinal and satisfaction items were part of the NLS third followup survey. It was found that students' attitudes about future work and satisfaction with college differed across majors on all but one attitude and one satisfaction item. It is concluded that specific attitudes about future employment and levels of satisfaction with college vary across college majors differently for males and for females. For example, results indicate that satisfaction with teachers and social life were more relevant factors for males than for females. It is further concluded that student attitudes about future work are related to college satisfaction, and these relationships are moderated by sex. (SW)

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The Influence of Sex and College Major on Students' Attitudes About Future Employment and Satisfaction with College

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The Influence of Sex and College Major on Students' Attitudes About Future Employment and Satisfaction with College

Introduction

The selection of an appropriate college major represents a crucial decision for many undergraduate students. Numerous attitudinal and personality variables have been found to be related to the choice of college major. A question that is of particular interest today is whether there are sex related differences in the relationship of student attitudes to student choices of undergraduate major. This study has two related purposes. The first is, to examine differences across major in students' attitudes about future work and satisfaction with their academic program, and to establish whether sex moderates those differences. The second purpose is to examine the nature of the relationships between the students' attitudes and their satisfaction with college, again looking for sex differences that affect the relationship.

Background

The collection of experiences, motives, and feelings that affect a students' decision to choose one academic major over the other is known to be quite complex. Researchers have found consistent links between various personality and attitude variables and students' decisions about their majors. Recent studies have reported significant findings involving self-concept (Richardson, 1975), several attitudinal variables (Cappeto, 1978; McCaulley, 1977) and expectancies (Hewitt & Jacobs, 1978).

One of the results of society's currently expanded consciousness of

gender related phenomena is that the choice of college major is increasingly being examined for sex biases. The relationships between measures of students' satisfaction and attitudes and students' choice of college major have been found to be moderated by sex by a number of researchers (Pascarella & Terenzini, 1977; Wertheim, Widom & Wortzel, 1978; Whiteside, 1977). Other researchers have failed to find significant sex differences (Northrop, 1976) or have concluded that sex contributed only indirectly or in some minor way to explaining career choice. Wertheim, et al., (1978) concluded that, while some sex differences existed, attitudinal and motivational differences across majors were more important. Harren, Kass, Tinsley & Moreland (1978) conducted a path analysis of related variables and concluded that, while sex did not directly influence the career decision making process, it did significally influence certain attitudes which, in turn, influenced the decision making process.

In a recent report, Fogelman (1979) examined the relationship of students' attitudes about the nature of their desired future work and their concerns about such issues as salary, opportunity for advancement, opportunity to help others, and variety on the job. After analyzing responses from about 12,000 students, he concluded that "the most striking and consistent pattern to emerge from the data (was) the sex differences" (p. 54).

The present study attempts to expand our understanding of these relationships, by using a broad sample of American students, and by examining the influence of sex and college major on these satisfaction and attitudinal variables.

Methodology

Sample and Data Source. A sample of 5,642 undergraduate seniors were selected from the more than 20,000 students surveyed in the National

Longitudinal Study (NLS) of the high school class of 1972. The identification of college major and the attitudinal and satisfaction data were obtained from the students responses on the third follow-up survey, conducted in the fall of 1976. The five college major areas studied were business, education, humanities/fine arts, physical and biological sciences/math, and the social sciences.

Instruments

The attitudinal and satisfaction items were part of the much more comprehensive NLS third follow-up survey. The item stems and NLS data codes are shown in Table 1. The attitudinal items employed a 3-point Likert scale ranging from "Very Important" to "Not Important." The satisfaction items employed a 5-point Likert scale that ranged from "Very Satisfied" to "Very Dissatisfied." The students' major in college was also identified on the NLS third follow-up survey. The survey instrumentation is the product of extensive design and field test procedures conducted by the Research Triangle Institute under the direction of E. F. Collins at the National Center for Educational Statistics (Eckland & Wisenbaker, 1979).

Insert Table 1 Here

Analyses

A multiple discriminant function analysis (DFA) was performed to examine attitudinal differences among undergraduate college majors. Then, two separate DFA's were run to determine if and how sex functions as a moderating variable. The same strategy of employing multiple DFA's was used to examine differences across majors in students' satisfaction with college life. A stepwise analysis using the criterion of attempting to maximize the distance among the group centroids (Rao's V) was used for each DFA.

To explore the second purpose of the study, an investigation of the relationship of attitudes about future work to satisfaction with college, the two sets of variable were examined in a canonical correlational analysis. One analysis was performed on the total sample and then separate analyses were conducted for males and females to determine the degree to which sex moderates the relationship.

Results

Attitudes. Nine of the ten attitudinal measures were significant ($p < .05$) predictors of college major. For males, seven items were found to be significant. For females, six of the items contributed significantly to the prediction. Table 2 summarizes the differences noted for males, females, and the total sample.

Insert Table 2 Here

The classification results for the attitudinal items improved when males and females were analyzed separately. These results, shown in Table 3, increase from 40.12% accurately classified for the merged sample to 43.98% and 45.14% accurately classified when the female and male samples were analyzed separately. This improved classification occurred in spite of a decrease in the number of significant predictors (from 9 for the total sample to 6 and 7 for the female and male samples, respectively).

Insert Table 3 Here

Satisfaction. The results of the DFA for satisfaction stems also showed differences across majors being moderated by sex (see Table 2). Classification results, shown in Table 3, again supported the hypothesis of sex as a moderating variable, since the percentage correctly classified increased substantially when males and females were analyzed separately.

The classification results for both the attitudinal and the satisfaction items were analyzed by an application of Cohen's Kappa, a procedure that tests the significance of the classification results beyond chance (Cohen, 1968). For each sample (total, male, and female) the classification results, after being corrected for chance agreement, were significant ($p < .001$).

The canonical correlational analyses between the satisfaction and the attitudinal variables revealed differential relationships for males and for females. The variables shown to be related by each of the canonical variates are shown in Table 4. For example, the table identifies that two canonical variates were found for the male sample. In the first variate, males' attitudes about job security and the importance and interesting nature of future work were related to male students' satisfaction with their development of work skills and their rate of intellectual growth. The second variate for males related their desire to have friendly co-workers with their satisfaction with the quality of teaching and their social life. Only the relationships revealed by the significant ($p < .05$) canonical variates are included in the table and reported in this study.

Insert Table 4 Here

Discussion

As expected, students' attitudes about future work and satisfaction with college differed across majors on all but one attitude and one satisfaction item. This was not surprising since prior research and logic dictate that these variables would be related to the choice of college major.

The more interesting results are the differences shown between males and females in the sample. Six of the attitude items (item numbers 1, 3, 4, 5, 8, and 9 in Table 2) and one satisfaction item (item number 3) predicted

college major significantly for both males and females. However, the attitude about important and interesting work (item 7) was only significant for the male sample. Items measuring satisfaction with overall teaching and social life (items 1, 2) were also significant predictors only for the male sample.

The importance of examining male and female attitudinal and satisfaction measures separately is further supported by two other aspects of the results. First, when males and females are analyzed together, the significant attitudinal and satisfaction items for males show up as significant predictors for the total sample. This indicates that, by failing to take sex into account, certain attitudes and elements of satisfaction would be incorrectly attributed to all students.

The final confirmation of the need to examine these variables separately for each sex can be seen in the classification results. Even though the number of predictors tended to drop when the sample was divided, the classification results improved 10% and 13% based on attitudinal predictors for females and males, respectively. The results based on the satisfaction predictors showed even greater gains, improving 22% for females and 30% for males. These gains are surprising, particularly in the case of the satisfaction items for the female sample, where a drop from three to one predictor led to a much more accurate classification of students to their major.

The results of the canonical correlational analyses (Table 4) provide additional evidence for the separate treatment of males and females in studies examining satisfaction and attitudinal variables. Although the number of significant relationships between the attitude and satisfaction indices was found to hold for both males and females, the nature of those relationships can be seen to be quite different. For example, the results for females in the sample show that previous work experience is an important

factor in determining the satisfaction that women have with at least three elements of college life, the development of work skills, overall teaching, and the rate of intellectual growth. However, for males, previous work experience does not appear important. Instead, attitudes about job security, the importance and interesting nature of future work, and friendliness of coworkers seem to be dominant factors in the men's satisfaction with college.

Also included in Table 4 are the relationships that held for the total sample. It can be seen that these relationships are not merely composites of what was found when males and females were analyzed separately, but are instead completely different in quantity and quality. This means that a researcher relying only upon total sample results, would tend to make entirely different observations and conclusions that would a researcher who divided the sample by gender.

Conclusions and Implications

There are several conclusions and implications that can be drawn from this study. First, it can be concluded that specific attitudes about future employment vary across college majors differently for males and for females. Second, it was found that males and females within a given major may be there for different, perhaps erroneous, reasons. For example, women who felt openings in the field was a high priority tended to choose a major in business, while men who felt this way tended to choose education. To the extent that projected job openings match these expectations, there would be no problem. If the employment reality did not conform to these expectations, counselors and students would be well advised to reconsider available alternatives.

It was found that levels of satisfaction with college varied differently for males and females across majors. Counselors and students could benefit by considering these differential patterns. For example, the results of

this study indicate that satisfaction with teachers and social life were more relevant factors for males than for females.

It was further concluded that student attitudes about future work are related to their satisfaction with college, and these relationships are moderated by sex. The results of this study indicate that the link between attitudes and satisfaction is similar in number but different in nature when sex is taken into account. This implies that certain sets of attitudes about work may require special consideration when individuals are deciding upon a college major, and that these sets of attitudes are different for males and females.

A final implication is that future research exploring the exact nature of the relationships among the choice of college major and student attitudes and satisfaction needs to take sex into account.

It is clear that many questions are still in need of answering. Other researchers conducting investigations in this area may find the following suggestions helpful. Since most students were quite satisfied with college, a longitudinal study of students who were in a major but withdrew before graduation would benefit from a less positive bias on the satisfaction measures. It is also likely that a replication with more extensive and sensitive satisfaction measures could develop a more accurate picture of the interrelationships of these constructs. And, finally, it seems likely that current societal changes will alter individuals' perceptions of sex roles and will affect their attitudes and behavior. There is a need to monitor these changes, not only to increase understanding of how suitable students' choices of college major are, but also to discover the changing role that sex plays in these decisions.

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FOOTNOTES

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Table 1

Item Stems and NLS Questionnaire Data Codes

NLS Codes	Item Stems
	Attitude Items
	How important is each of the following factors in determining the kind of work you plan to be doing for most of your life?
TQ952A	1. Previous work experience in the area
TQ152B	2. Relative or friend in the same line of work
TQ152C	3. Job openings available in the occupation
TQ152D	4. Work matches a hobby interest of mine
TQ152E	5. Good income to start or within a few years
TQ152F	6. Job security and permanence
TQ152G	7. Work that seems important and interesting to me
TQ152H	8. Freedom to make my own decisions
TQ152I	9. Opportunity for promotion and advancement in the long run
TQ152J	10. Meeting and working with sociable, friendly people
	Satisfaction Items
	With regard to your education and training during the last year you were in school, how satisfied as a whole were you with the following?
TQ50A	1. The ability, knowledge, and personal qualities of most teachers
TQ50B	2. The social life
TQ50C	3. Development of my work skills
TQ50D	4. My intellectual growth

Table 2

Significant Predictors of College Major

in Discriminant Function Analyses

Items	Significance of Predictors for Males	Female	Total
Attitudinal Items			
1. Previous work experience	***	***	***
2. Friends in same field			
3. Job openings	***	***	***
4. Similarity to current hobbies and interests	***	***	***
5. Salary	***	***	***
6. Job security			***
7. Important and interesting work	**		***
8. Freedom to make decisions	*	**	*
9. Opportunity for advancement	***	***	***
10. Friendly co-workers			**
Satisfaction Items			
1. Overall teaching	**		**
2. Social life	*		**
3. Development of work skills	***	***	***
4. Rate of intellectual growth			

*p < .05 **p < .01 ***p < .001

Table 3

Number of Significant Predictor Variables and

Percentages of Students Correctly Classified to College Major

Sample	Attitude		Satisfaction	
	Number of Significant Predictors[1]	Percentage of Cases Correctly Classified	Number of Significant Predictors[2]	Percentage of Cases Correctly Classified
Males	7	45.14	3	40.36
Females	6	43.98	1	37.93
Total	9	40.12	3	31.15

[1]There was a maximum of 10 attitude items.

[2]There was a maximum of 4 satisfaction items.

Table 4

Canonical Variates Relating Attitude and Satisfaction Items for Males, Females, and the Total Sample

Group	Canonical Variate[1]	Attitude	Satisfaction
Males	1	Job security Important and interesting work	Development of work skills Rate of intellectual growth
	2	Friendly co-workers	Overall teaching Social life
Females	1	Previous work experience	Development of work skills
	2	Previous work experience Friends in the same field Important and interesting work Friendly co-workers	Overall teaching Development of work skills
Total	1	Previous work experience	Development of work skills Rate of intellectual growth
	2	Previous work experience Friendly co-workers	Social life Development of work skills
	3	Similarity to current hobbies Important and interesting Opportunity for advancement	Overall teaching Social life

[1] A cutoff of .40 on the canonical variate coefficients was used for variates significant at $p < .05$.